

Ecosystem Accounts – Grasslands and Croplands 2018

Nova Sharkey Ecosystem Accounts December 2021

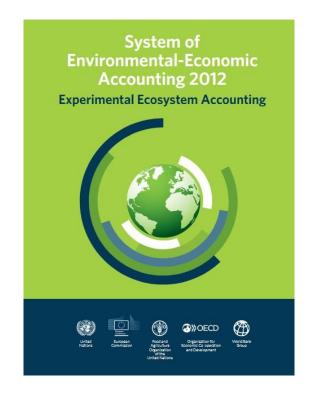


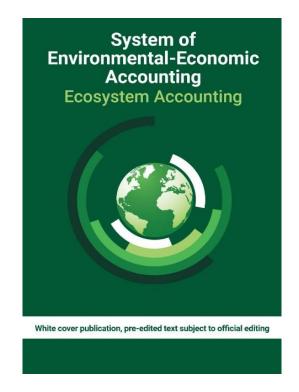














- 1. Ecosystem extent
- 2. Ecosystem condition
- 3. Ecosystem services (physical flow)
- 4. Ecosystem services (monetary)
- 5. Monetary ecosystem asset

Thematic accounts:

Biodiversity, urban areas, carbon, etc.

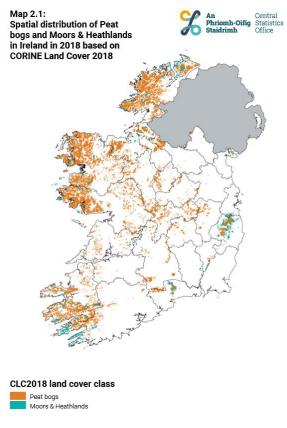


- 1. Ecosystem extent
- 2. Ecosystem condition
- 3. Ecosystem services (physical flow)
- 4. Ecosystem services (monetary)
- 5. Monetary ecosystem asset

Thematic accounts:
Biodiversity, urban areas, carbon,

Table 2.2 - Total area of Peat bogs and Moors & Heathlands in Ireland in 2012 and 2018 based on CORINE Land Cover 2012 and 2018

_	no. of hec	tares	%	
Land cover type	2012	2018	2018	
Peat bogs	971,848	967,728	13.8	
Moors & Heathlands	125,892	125,555	1.8	
Total area and proportion	1,097,740	1,093,283	15.6	



https://www.cso.ie/en/releasesandpublications/fp/fp-eap/ecosystemaccounts-peatlandsandheathlands2018/



- 1. Ecosystem extent
- 2. Ecosystem condition
- 3. Ecosystem services (physical flow)
- 4. Ecosystem services (monetary)
- 5. Monetary ecosystem asset

Thematic accounts: Biodiversity, urban areas, carbon, etc.

Ireland's waterways face increasing levels of nitrogen pollution

Hard lessons to be learned from Dutch efforts to cut back on pollution levels

O Thu, Jul 1, 2021, 00:00

Ella McSweeney



Harmful green and red algae blooms seen in a Co Cork estuary due to excessive levels of nitrogen. Photograph: Liam Morrison/NUIG



- 1. Ecosystem extent
- 2. Ecosystem condition
- 3. Ecosystem services (physical flow)
- 4. Ecosystem services (monetary)
- 5. Monetary ecosystem asset

Thematic accounts:
Biodiversity, urban areas, carbon, etc.

Restoring raised bogs for a greener future

Returning 8,000 hectares of raised bogs to their natural state will help absorb carbon from the atmosphere.





- 1. Ecosystem extent
- 2. Ecosystem condition
- 3. Ecosystem services (physical flow)
- 4. Ecosystem services (monetary)
- 5. Monetary ecosystem asset

CSO statistical release, 11 October 2021, 11am



2019

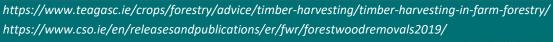
Total Removals 2015-2019

	'000 cubic		
Year '000 ton	nes met	res € million	
2015 2	,970 3,2	283 148.6	
2016 3	,167 3,4	158.9	
2017 3	,338 3,6	679 168.2	
2018 3	414 3,7	764 183.4	
2019 3	,622 3,9	980 181.0	

Thematic accounts:

Biodiversity, urban areas, carbon,





- 1. Ecosystem extent
- 2. Ecosystem condition
- 3. Ecosystem services (physical flow)
- 4. Ecosystem services (monetary)
- 5. Monetary ecosystem asset

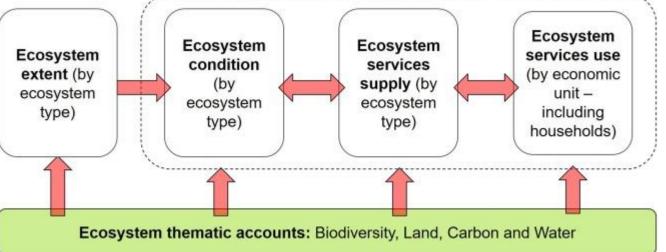
Thematic accounts:

Biodiversity, urban areas, carbon, etc.





- 1. Ecosystem extent
- 2. Ecosystem condition
- 3. Ecosystem services
- 4. Ecosystem services
- 5. Monetary ecosyster



Thematic accounts:

Biodiversity, urban areas, carbon, etc.



Environmental Science & Policy
Volume 116, February 2021, Pages 20-29

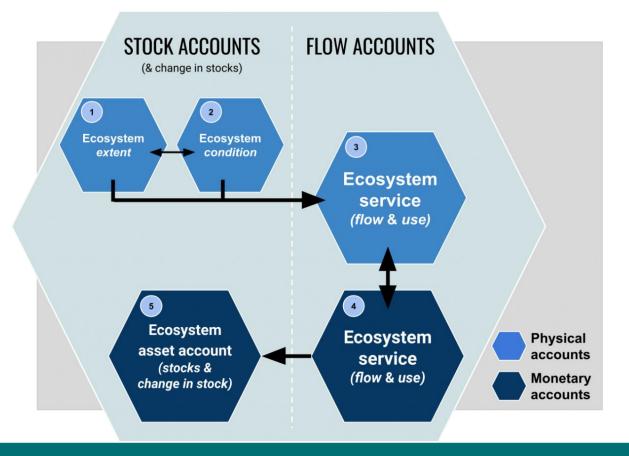


Linking biodiversity into national economic accounting

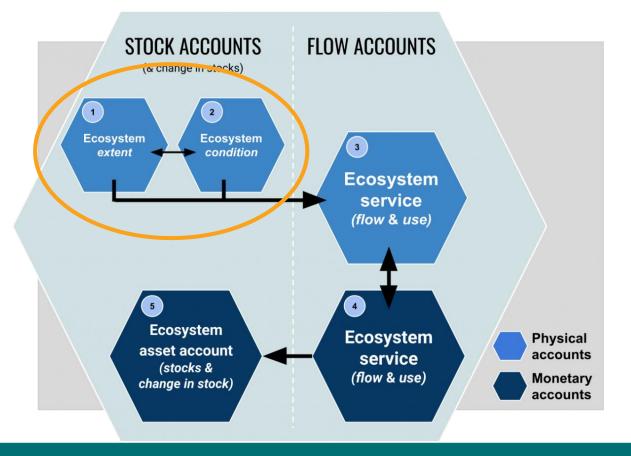
Steven King ^a × ^{SS}, Michael Vardon ^b, Hedley S. Grantham ^c, Mark Eigenraam ^d, Simon Ferrier ^e, Daniel Juhn ^f,

Trond Larsen ^f, Claire Brown ^a, Kerry Turner ^g





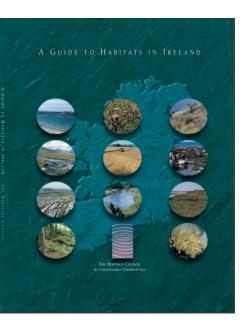








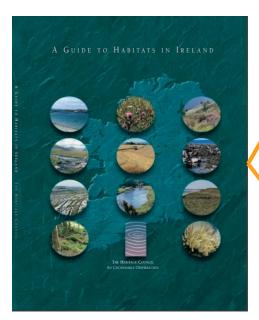




A guide to habitats in Ireland (Fossitt, 2000)

- Hierarchical
- Level 1 − 11 broad habitat groups
- Level 2 30 habitat subgroups
- Level 3 117 habitats





Grassland and Marsh



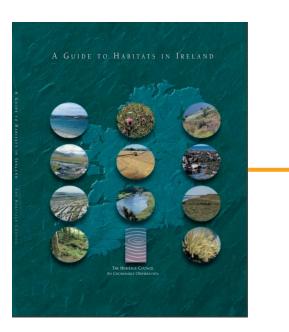


- Improved agricultural grassland
- Amenity grassland (improved)



- Dry calcareous and neutral grassland
- Dry meadows and grassy verges
- Dry-humid acid grassland
- Wet grassland

Photos: Maria Long

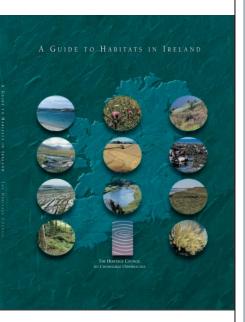




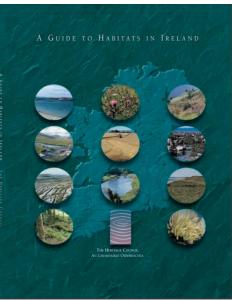
- Arable crops
- Horticultural land
- Tilled land

Cultivated and built land











1. Artificial surfaces

1.1.1. Continuous urban fabric

1.1.2. Discontinuous urban fabric

1.2.1. Industrial or commercial units

1.3 Mine, dump and construction sites

1.2.3. Port areas

1.2.4. Airports

1.2 Industrial, commercial and transport units

1.2.2. Road and rail networks and associated land

1.1 Urban fabric

Corine land cover classes

3.1 Forests

3. Forest and seminatural areas

3.1.1. Broad-leaved forest

3.2 Shrub and/or herbaceous vegetation associations

3.1.2. Coniferous forest 3.1.3. Mixed forest

3.2.1. Natural grassland

3.2.2. Moors and heathland

3.2.3. Sclerophyllous vegetation

3.2.4. Transitional woodland shrub



CLC	CLC	CLC	MAES	MAES
level 1	level 2	level 3	Level 1	Level 2
Urban fabric	Urban fabric	Continuous urban fabric		
	Orban rabric	Discontinuous urban fabric]	
		Industrial or commercial units]	
	Industrial,	Road and rail networks and		
	commercial and	associated land		Urban ecosystems
Artificial	transport units	Port areas]	
surfaces		Airports]	
surraces	Mine, dump and	Mineral extraction sites]	
	construction sites	Dump sites		
		Construction sites]	
	Artificial, non-	Green urban areas]	
	agricultural vegetated areas	Sport and leisure facilities		
		Non-irrigated arable land	1	
	Arable land	Permanently irrigated land	1	Cropland
		Rice fields	1	
		Vineyards	1	
	Permanent crops	Fruit trees and berry plantations]	
		Olive groves		
Agricultural	Pastures	Pastures	1	Grassland
areas		Annual crops associated with	Terrestrial	Cropland
		permanent crops		
	Heterogeneous agricultural areas	Complex cultivation patterns		
		Land principally occupied by		
		agriculture, with significant		
		areas of natural vegetation		
		Agro-forestry areas	1	
		Broad-leaved forest	1	
	Forests	Coniferous forest	1	Forest
		Mixed forest		
	Scrub and/or	Natural grasslands	1	Grassland
Forest and	herbaceous	Moors and heathland	1	Heathland and shock
semi	vegetation	Sclerophyllous vegetation	1	Heathland and shrub
natural	associations	Transitional woodland-shrub		Forest
areas		Beaches, dunes, sands		Sparsely vegetated land
	Open spaces with	Bare rocks		
	little or no vegetation	Sparsely vegetated areas		
		Burnt areas		
		Glaciers and perpetual snow	1	
	televel westered	Inland marshes		belond continued.
	Inland wetlands	Peat bogs	1	Inland wetlands
	Maritime wetlands	Salt marshes		Marine inlets and transitional water
		Salines	Marine	
		Intertidal flats	1	
		Water courses		
	Inland waters	Water bodies	Freshwater	Rivers and lakes
Water	Marine waters	Coastal lagoons	Marine	Marine inlets and transitional
bodies		Estuaries		water
		Sea and ocean	1	Coastal, shelf and open ocean



Table 2.1. Correspondence between CORINE land cover (CLC) classes and MAES ecosystem types.

CLC	CLC	CLC	MAES	MAES
level 1	level 2	level 3	Level 1	Level 2
	Urban fabric	Continuous urban fabric		
	Urban fabric	Discontinuous urban fabric	1	
		Industrial or commercial units	1	
	Industrial,	Road and rail networks and	1	
	commercial and	associated land		
Artificial	transport units	Port areas	1	
surfaces		Airports]	Urban ecosystems
Surraces	Mine, dump and	Mineral extraction sites]	
	construction sites	Dump sites		
	construction sites	Construction sites]	
	Artificial, non-	Green urban areas		
	agricultural vegetated areas	Sport and leisure facilities]	
	vedetated areas	Non-irrigated arable land		
	Arable land	Permanently irrigated land]	
		Rice fields]	Cropland
		Vineyards]	Cropiano
	Permanent crops	Fruit trees and berry plantations		
		Olive groves]	
Agricultural	Pastures	Pastures		Grassland
areas		Annual crops associated with	Terrestrial	
		permanent crops]	
	Heterogeneous	Complex cultivation patterns]	
	agricultural areas	Land principally occupied by		Cropland
	agricultural areas	agriculture, with significant		
		areas of natural vegetation		
		Agro-forestry areas	ļ	
	Forests	Coniferous forest	1	Forest
	rulests	Mixed forest	1	rolesc
	Scrub and/or	Natural grasslands		Grassland
Forest and	neroaceous	Moors and neathland	ĺ	Heathland and shrub
semi	vegetation	Sclerophyllous vegetation]	
natural	associations	Transitional woodland-shrub	1	Forest
areas		Beaches, dunes, sands	1	
	Open spaces with	Bare rocks]	
	little or no	Sparsely vegetated areas	1	Sparsely vegetated land
	vegetation	Burnt areas		
		Glaciers and perpetual snow	1	
	Inland wetlands	Inland marshes		Inland wetlands
Wetlands	Peat bogs			
wetiands	Maritime	Salt marshes		Marine inlets and transitional
	wetlands	Salines Intertidal flats	Marine	water
	Inland waters	Water courses	Freshwater	Rivers and lakes
Water		Water bodies		Marian Inlata and Sanashi
bodies	Marine waters	Coastal lagoons	Marino	Marine inlets and transitional
Marine waters	marine waters	Estuaries	Marine	water
í	I	Sea and ocean		Coastal, shelf and open ocean



Why does it matter?







Ireland EU-27 10 15 20 25 30 35 45 50 55 70 75 85 95 100 % Grasslands Croplands Artificial surfaces Forests and woodlands Moors and heathlands Other semi-natural areas Peat bogs Waterbodies Wetlands (excluding Peat bogs)

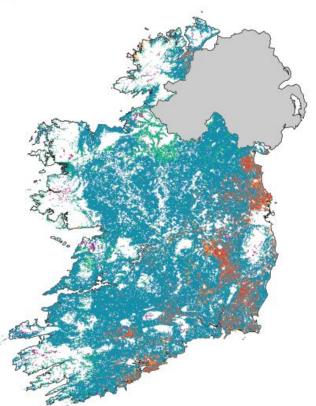
Figure 2.1 Barchart showing land cover of broad ecosystem types based on CLC2018 for Ireland and the EU-27



Source: Environmental Protection Agency and European Environment Agency

Map 2.1





Grasslands and croplands:

- 4.8 million hectares
- 68%

CORINE Land Cover Classes representing grasslands and croplands

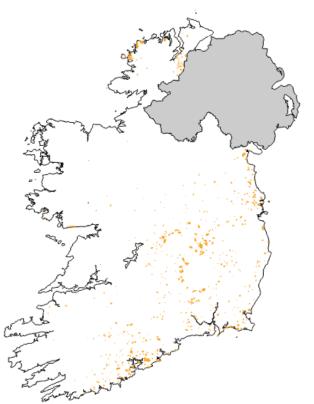




Data Source:

Map 2.1





Complex cultivation patterns

- 58,212 hectares
- 1%

CORINE Land Cover Classes representing grasslands and croplands





Data Source:

Map 2.1





Fruit trees and berry plantations

• 295 hectares

CORINE Land Cover Classes representing grasslands and croplands

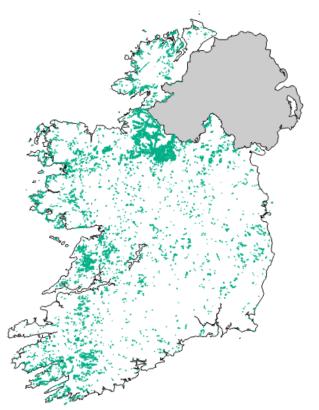




Data Source:

Map 2.1





Land principally occupied by agriculture, with significant areas of natural vegetation

- 487,440 hectares
- 7%

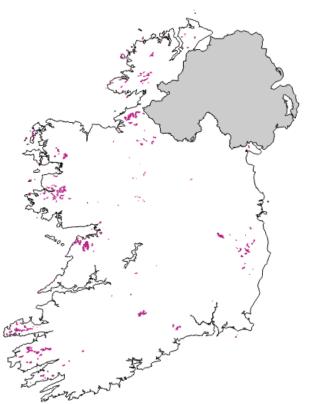
CORINE Land Cover Classes representing grasslands and croplands

- Complex cultivation patterns
 Fruit trees and berry plantations
 Land principally occupied by agriculture,
 with significant areas of natural vegetation
- Natural grasslands
 Non-irrigated arable land
 Pastures

Data Source:

Map 2.1





Natural grasslands

- 48,567 hectares
- 1%

CORINE Land Cover Classes representing grasslands and croplands

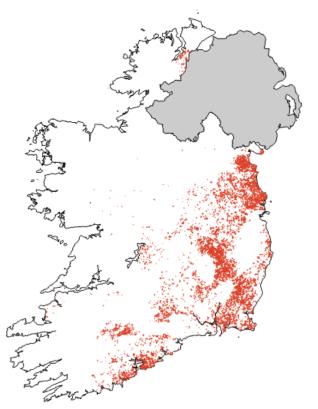




Data Source:

Map 2.1





Non-irrigated arable land

- 320,329 hectares
- 5%

CORINE Land Cover Classes representing grasslands and croplands

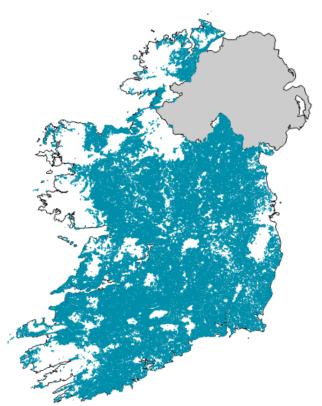




Data Source:

Map 2.1





Pastures

- 3,893,873 hectares
- 55%

CORINE Land Cover Classes representing grasslands and croplands



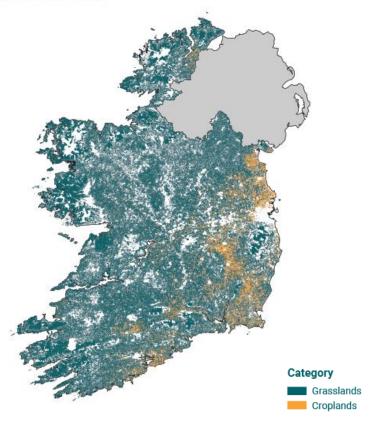


Data Source:

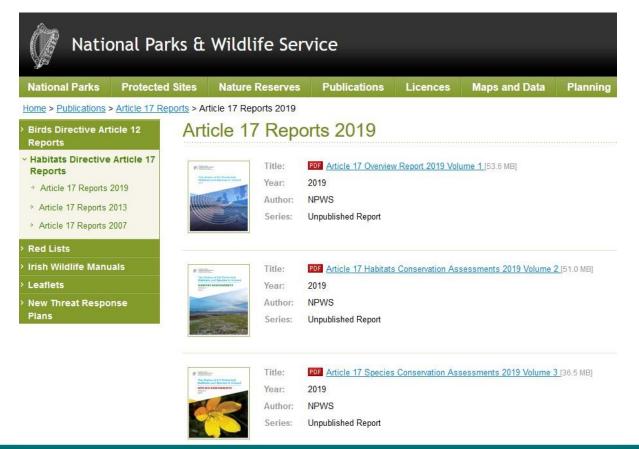
Map 2.5

Distribution of Land Parcel Identification System categories representing grasslands and croplands, based on 2018 data





Land Parcel Identification System Grasslands – 4,487,148 hectares Croplands – 461,236 hectares









Condition – National level

Pressure indicators

Pressure class	Indicator	% Change Trend
Habitat conversion and degradation (land conversion)	Ecosystem extent	-0.1 No change
	Land take	-1.0 No change
	Agricultural Area Utilised	-1.2 No change



Condition – National level

Condition indicators

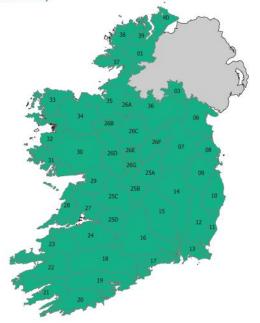
Condition class	Indicator	% Change Trend
Environmental quality (physical and chemical quality)	Nitrogen concentration in groundwater	N/A N/A
Structural ecosystem attributes	Share of organic farming in AAU	50.0 Improvement
(general)	Livestock density	9.5 Degradation
Structural ecosystem attributes based on species diversity and abundance	Farmland Bird Index	8.7 Improvement
Structural ecosystem attributes monitored under the EU nature directives and national legislation	Share of grassland habitats listed under Annex I of the Habitats Directive (HD) in favourable conservation status	0 No change
	Share of grassland habitats listed under Annex I of the HD showing unfavourable conservation trends	150 Degradation
	Percentage of grasslands and croplands covered by Natura 2000 (SACs and SPAs)	0 No change
	Percentage of grasslands and croplands covered by nationally designated areas (NHAs and pNHAs)	0 No change
	Percentage of grasslands and croplands in all protected areas	0 No change



Map 3.1

Water Framework Directive management units, or catchments. (Refer to Table 3.5 for names of catchments)





46 river catchments

Water Framework Directive Catchment

Data Source:

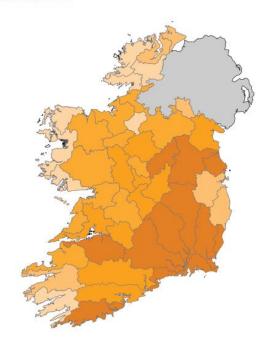
Water Framework Directive Catchments (Environmental Protection Agency)



Map 3.2

Proportion of each catchment classed as grasslands or croplands, using CLC2018









Data Sources:

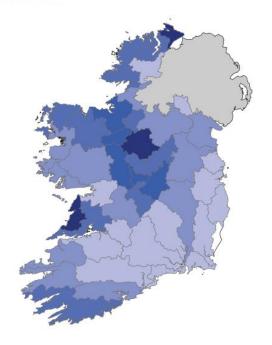
Water Framework Directive Catchments (Environmental Protection Agency)
CORINE Land Cover 2018 (Environmental Protection Agency and European Environment Agency)



Map 3.3

Proportion of grasslands and croplands (from CLC2018) occurring on peaty soils





Grasslands and croplands occurring on peaty soil

<5% 5% - 10% 10% - 15% 15% - 20% 20% - 25%

Data Sources:

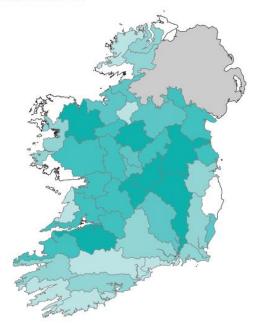
Water Framework Directive Catchments (Environmental Protection Agency)
CORINE Land Cover 2018 (Environmental Protection Agency and European Environment Agency)
Irish Soil Information System (Environmental Protection Agency and Teagasc)



Map 3.4

Proportion of grasslands and croplands (from CLC2018) that are 'benefitting lands' per Arterial and District Drainage schemes





Grasslands and croplands drained by Arterial and District Drainage

<1%</p>
1% - 2%
2% - 5%
5% - 10%
10% - 16%

Data Sources:

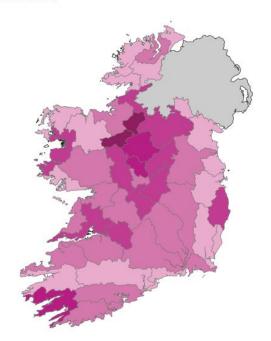
Water Framework Directive Catchments (Environmental Protection Agency)
CORINE Land Cover 2018 (Environmental Protection Agency and European Environment Agency)
Arterial and District Drainage scheme data (Office of Public Works)



Map 3.5

Proportion of Agricultural Area Utilised (AAU) that is under organic farming





AAU under organic farming

<1%</p>
1% - 2%
2% - 3%
3% - 5%
>5%

Data Sources:

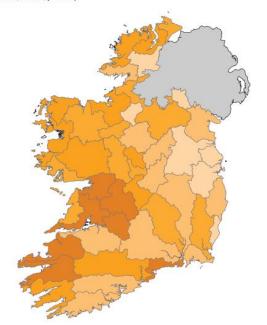
Water Framework Directive Catchments (Environmental Protection Agency)
CORINE Land Cover 2018 (Environmental Protection Agency and European Environment Agency)
Land Parcel Identification System (Department of Agriculture, Food and the Marine)



Map 3.6

Proportion of grasslands and croplands (from CLC2018) occurring in protected areas (SACs, SPAs, NHAs, pNHAs)





Grasslands and croplands occuring in protected areas (% of catchment)



Data Sources:

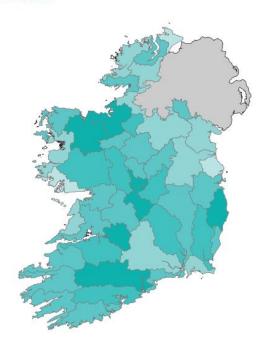
Water Framework Directive Catchments (Environmental Protection Agency)
CORINE Land Cover 2018 (Environmental Protection Agency and European Environment Agency)
Protected sites data (National Parks and Wildlife Service)



Map 3.7

Proportion of waterbodies in each catchment achieving 'High' or 'Good' status









Data Sources

Water Framework Directive Catchments (Environmental Protection Agency)
Water Framework Directive Cycle 3 Catchment Assessments (Environmental Protection Agency)









